On the Occurrence of a new Hydrichthys in the Pacific Coast of Japan

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The hydroids associated with fishes are represented in Japan by two following species: *Podocorella minoi* (Alcock) on *Minous inermis* and *Stylactis piscicola* Komai on *Erosa erosa*. Both were lately studied by Komai (1932) and fine plates were given for each species. As to the highly curious hydroid *Hydrichthys*, it has not been reported neither from Japan nor from any part of the whole Pacific region. I came across with this hydroid at Seto in the following circumstance and though my observations are very incomplete I give some of my fragmentary accounts here in the hope that our naturalists would turn attention to this interesting form and secure more materials for closer study.

On the 8th July 1933, at the occasion of low tide I collected several small fishes from a tide-pool close to the Seto Marine Biological Laboratory. Among them a larva of about 3 cm of *Chaetodon* sp. was found to have a small white body something like a cotton piece (about 5 mm in extent) on the left side just below the pectoral fin. At first I thought it to be a parasitic fungus and paid little attention. The white speck became by degrees brownish and looser in appearance. On the 12th I cut a small piece from it and examined. It was readily revealed that the body is a colony of a gymnoblastic hydroid belonging to *Hydrichthys* or allied genus. I kept the fish alive in the hope to see the liberation of medusae. But in the morning of 16th I found that the cluster had disappeared. I thought that the colony had detached and washed away during the night. After a few days the fish was dead and on closer examination it became known that the hydroid had not been lost but only seemingly disappeared by the loss of medusa-buds, which were thought to have been liberated as medusae.

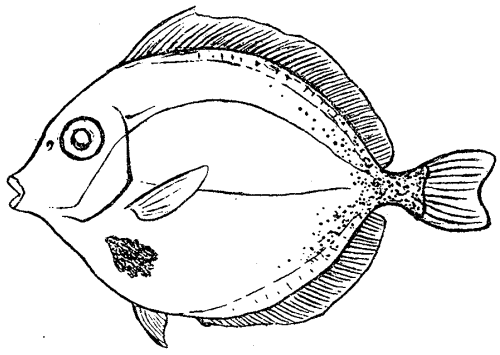

Fig. 1. A larval *Xesurus* with a colony of *Hydrichthys pacificus*. n. sp. × 2

Both in appearance and structure the hydroid closely resembles to *Hydrichthys mirus* Fewkes. The cluster consists of elongated blastostyles arising from basal plate and side-branches bearing numerous medusa-buds. As each blastostyle has several branches with medusae of all stages of development, the colony appears highly botryoidal (Fig. 2). The blastostyle ends in a club-shaped polype without tentacle

and having closed extremity laden with numerous nematocysts. In the present species branches on the stem appears to be shorter and more close together than shown in the figure of *H. mirus* given by Fewkes (1888).

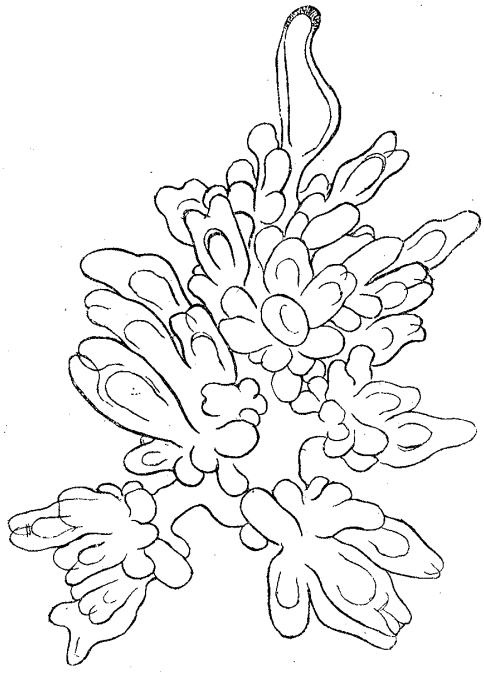

Fig. 2. A part of the colony of *Hydrichthys pacificus* n. sp. ×16

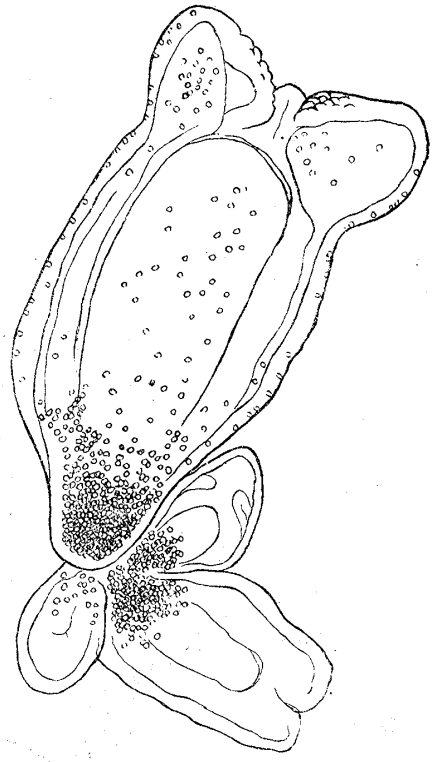

Fig. 3. Medusa-buds. m-manubrium t-marginal tentacl ×35

The well-developed medusa-bud (Fig. 3) also resembles closely to that of *H. mirus* . It has an elongated cylindrical body with a pair of large stumpy elongated tentacular buds. In larger buds the thick, manubrium is very remarkable. Near the base of attachment abundant oil-droplets are recognized in the mesogloea. In the ectoderm of the bell are scattered a few nematocysts and oil-droplets.

After detachment of medusa-buds were left numerous elongated club-shaped polypes (Fig. 4) arising from the basal plate, by which the colony is adhered to the integument of the fish. Some very young newly formed medusa-buds are seen growing on the stems of the polype. I have seen only polypes with closed end and could not ascertain the presence of a gasterozooid, but this point must be reexamined. The basal plate appears leathery and pretty firmly attached to the epidermis of the fish so that the latter is seemingly injured when the colony was removed.

At present we know three species of *Hydrichthys*. *Hydrichthys mirus* Fewkes (1888) which is most closely resembles to the present form, was found on *Seriola zonata* from the coast of New England. The colony is reddish in color and is much larger than the present species: (base of the colony $^3/_4$ inch in lateral extent). Liberated medusae were also observed in this species. The second species, *H. boycei* Warren (1916) was found in the Durban Bay, South Africa, on different kinds of

Fig. 4. A portion of the colony of *Hydrichthys pacificus* n. sp. after the detachment of the medusa-buds. Several elongated blastostyles arising from a piece of basal plate. New medusa-buds growing on the stems of some polypes. From life, ×24.

small fishes (*Ambassis natalensis*, *Mugil* sp. and some young Glyphidontidae). This species is maintained to be a true parasite, the basal plate being thick and broad, sending rook-like processes into host's tissue which is disintegrated and absorbed by the action of the basal plate and roots. The hydranth is also said to be capable of sucking blood-corpuscles of the host. The third species, *H. cyclothonis* Damas (1934) is known from a deep-sea fish *Cyclothone signata* from different parts of the western Atlantic. The colony is usually very small and always found fixed on one of the fins. This species is also held to be a veritable parasite, since the basal plate has the digestive function. The underlying tissue of the host is disintegrated and absorbed by its action. The fin infested with the hydroid become wasted, sometimes even disappearing.

That the present species of *Hydrichthys* from Seto, though not studied exhaustively, belongs to a new species is do ubtless since it is somewhat different from each of the above three species. The specific name "*pacificus*" is given to it, as it is the first known from the Pacific region. I reserve myself, however, from giving specific diagnosis until it is studied more thoroughly. As to in what extent the hydroid is dependent upon the fish in nourishment we know still nothing. The problem should be solved when new materials are afforded.

In closing I must express my gratitude to Prof. T. Komai and Prof. T. Uchida who rendered important literatures accessible to me.

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